

# COMMERCIAL CREW

National Aeronautics and  
Space Administration



## LAUNCH AMERICA

SMD Symposium  
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The background of the slide is a photograph of the International Space Station (ISS) in orbit above Earth. The station's complex structure, including its large solar panel arrays and various modules, is clearly visible against the blackness of space. The Earth's horizon is visible at the bottom of the frame, showing a blue atmosphere and a brownish-yellow landmass. The text is overlaid on the left side of the image.

## Advancing Human Spaceflight

The vision of commercial human spaceflight to low-Earth orbit is a robust, vibrant enterprise with many providers and a wide range of private and public users. A successful human space transportation system will strengthen the International Space Station Program, allow NASA to focus on deep-space exploration, potentially reduce the cost of human access to space and significantly contribute to the national economy. NASA's Commercial Crew Program serves two purposes:

### *Public Purpose*

Support the development of non-NASA markets for commercial human transportation services to and from low-Earth orbit.

### *NASA Purpose*

Safe transport of NASA and NASA-sponsored astronauts to and from the station.



# NASA Purpose

## Ongoing Development and Certification Through Contracts



### Boeing

Ongoing development and certification efforts on the integrated CST-100 Starliner spacecraft and United Launch Alliance Atlas V crew transportation system

### SpaceX

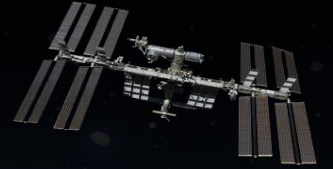
Ongoing development and certification efforts on the integrated Crew Dragon 2 spacecraft and Falcon 9 crew transportation system

The same launch vehicles are also utilized by LSP, SLS, Air Force, etc.





# Establishing New Capabilities



- Requirements:
  - Transport four NASA crew members to the International Space Station
  - Provide a 'lifeboat' capability to return crew to Earth. Now using Soyuz spacecraft, limited to three crew
  - Accommodate up to 100 kg (220.5 lbs) of soft-stowage cargo in a pressurized environment



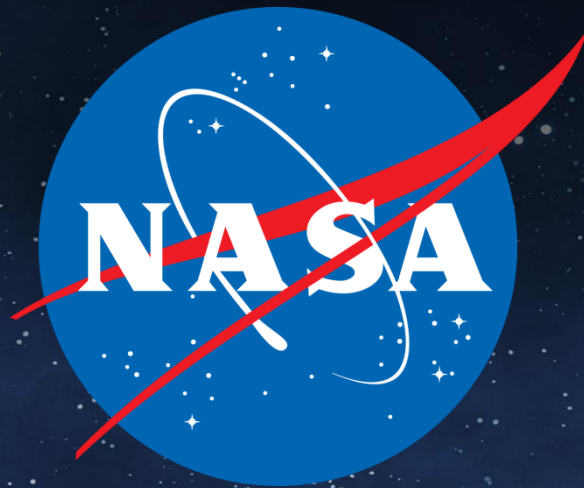
**Commercial Crew** access to Space Station **enhances research** opportunities in orbit for **fundamental** research into human physiological processes and **practical evaluation** of potential disease-fighting medicines.



# Collaboration with Other Programs/Agencies



- NASA Launch Services Program (LSP)
  - Task agreements
  - Fleet data
- NASA Space Launch System (SLS)
  - Engine analysis, hazard reports
  - Design and construction standards
- USAF (SMC) and Aerospace Corporation
  - Weekly meetings
  - Data exchanges



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